

having at least a portion disposed in said cavity portion;

a low-reflection film formed having a reflectance of 5% or less on one end face of the structure; and

a high-reflection film having a reflectance of 80% or more formed on the other end face of the structure.

Please add new Claim 29:

29. (New) A semiconductor pumping laser device comprising:

a resonator cavity having a first end face and a second end face, and comprising a cavity portion between the first and second end faces, the cavity portion having a length greater than or equal to 1200 μm and a width at each point along the length of the cavity portion that can only support a single transverse mode;

a laminated structure of a semiconductor material including an active layer comprising at least one quantum well structure, said laminated structure being formed on a substrate and having at least a portion disposed in said cavity portion;

a low-reflection film formed having a reflectance of 5% or less on one end face of the structure; and

a high-reflection film having a reflectance of 80% or more formed on the other end face of the structure.

REMARKS

This Amendment is submitted in response to the Office Action Mailed January 15, 2003, wherein Claims 1, 3-4, 9, 12, 15-17, 20, 25, and 27 were rejected 35 U.S.C. §103(a) as being obvious the U.S. Patent No. to Aoki, *et al.* (the "Aoki patent") in view of U.S. patent application publication No. US-2001/0048702-A1 to Yoshida, *et al.* (the "Yoshida application"), and wherein Claims 2, 5-8, 10-11, 13-14, 18-19, 21-24, 26, and 28 were rejected under 35 U.S.C. §103(a) as being obvious the Aoki patent in view of the Yoshida application, and further in view of U.S. Patent No. 6,122,299 to DeMars, *et al.* (the "DeMars patent"). Applicants address each of the rejections below by arguing that the *prima facie* combinations lack support under U.S. law because the Yoshida application does not qualify as prior art under 35 U.S.C. §§ 102 and 103. Applicants also voluntarily amended Claim 1 and added new Claim 29. **Claims 1-28 and new Claim 29 are pending.**

Response to the Rejections of Claims 1-28 under 35 U.S.C. § 103(a)

Both of the Rejections of the claims rely upon the Yoshida application, which was filed on February 2, 2001, and published on December 6, 2001. Both of these dates are after Applicant's filing date of February 25, 2000. For the reasons provided below, Applicants respectfully submit that the Yoshida Application does not qualify as prior art under 35 U.S.C. §§ 102 and 103, and therefore that the Rejections do not have proper support since one of the references used to construct the *prime facie* combinations does not qualify as prior art.

Because its publication date is after Applicants' filing date, the Yoshida application cannot be prior art under §102(a) and §102(b). Also, the February 2, 2001 filing date of the Yoshida application cannot be used to qualify the reference under §102(e) as prior art because it is after Applicants' filing date.

The Yoshida Application is a continuation-in-part (CIP) application of U.S. patent application serial No. 09/680,153, which was filed on October 3, 2000 as a continuation of international patent application No. PCT/JP00/00590. The international patent application has an international filing date of February 3, 2000, and was published in the Japanese language with publication No. WO00/46893 on August 10, 2000. Since the international patent application was published after Applicants' filing date of February 25, 2000 and before the change in 35 U.S.C. § 102(e) that took effect on November 29, 2000, the published international patent application itself does not qualify as prior art under any of sections 102(a), 102 (b) and 102 (e). Since U.S. patent application serial No. 09/680,153 was filed after Applicants filing date (and therefore not published before this date), it cannot qualify as prior art under 35 U.S.C. §§ 102(a) and 102(b). In addition, the October 3, 2000 filing date of U.S. patent application serial No. 09/680,153 cannot be used to establish either U.S.S.N 09/680,153 or US-2001/0048702-A1 as prior art under §102(e) since this filing date is after Applicants' filing date. Moreover, the February 3, 2000 international filing date of PCT/JP00/00590 cannot be used to qualify either U.S.S.N 09/680,153 or US-2001/0048702-A1 as prior art since the international filing date was filed before November 29, 2000, the effective date of the change in section 102(e) (see the 2003 edition of the M.P.E.P., §§ 706.02(a), 706.02(f), and 2136.03).

Accordingly, the Yoshida US-2001/0048702-A1 application does not qualify as prior art under § 102, nor does either of its related cases U.S.S.N. 09/680,153 and PCT/JP00/00590 qualify as prior art. It is fundamental that all of the references used to construct a *prime facie*

combination under §103 must qualify as prior art for the combination to be properly advanced. Since the Yoshida US-2001/0048702-A1 application is used in all of the § 103 rejections, and since it does not qualify as prior art, the *prima facie* combinations cannot be properly advanced. Accordingly, Applicants respectfully request that the Rejections of the claims under § 103 be withdrawn. Action to that end is respectfully solicited.

Voluntary Amendment to Claim 1

The amendment made to Claim 1 is voluntary, and is not made in response to the Rejections under § 103.

Prior to this Amendment "C," Claim 1 recited that the cavity portion had a length greater than or equal to 1200 μm and a width that can only support a single transverse mode. With this Amendment "C," Claim 1 has been further amended to clarify this width extends along the entire length of the cavity portion. Specifically, Claim 1 now recites "the cavity portion having a length greater than or equal to 1200 μm and a width along the entire length that can only support a single transverse mode" (emphasis added). The amendment is supported by the application as follows. It is known in the semiconductor laser art that the width of a resonator cavity portion determines the number of transverse modes that can be supported by that cavity portion. Examples in the present application disclose the use of a uniform width along the entire length of the resonator cavity (including any cavity portion thereof), particularly the examples described at page 1, line 31 through page 5, line 28 of the original Specification (FIGS. 1 and 2 indicate a uniform width) and page 11, line 20 through page 12, line 32 of the original Specification (a 4- μm mesa width is disclosed at page 11, line 30 thereof). In addition, the application discloses that the invention is intended for pumping semiconductor laser devices which emit a single transverse mode. For example, the far-field pattern of FIG. 5 shows a single transverse mode, which is described on page 5, lines 16-27 of the original Specification. At line 25 thereof, the term "unit-modal transverse oscillation" is used. "Unit-modal transverse oscillation" is the same as "single transverse mode oscillation." (Please note that the *transverse* mode is different from the *longitudinal* mode.) Accordingly, Applicants respectfully submit that the amendment to Claim 1 is supported by the application as originally filed, and that it does not enter new matter.

New Claim 29

New Claim 29 is identical to amended Claim 1 except that new Claim 29 recites that the cavity portion has "a width at each point along the length of the cavity portion that can only support a single transverse mode" instead of "a width along the entire length that can only support a single transverse mode". Applicants respectfully submit that this language is supported for the same reasons as provided above with respect to the amendment to Claim 1, and respectfully submit that the remaining parts of Claim 29 are supported for the same reasons as amended Claim 1 since the remaining parts are identically found in amended Claim 1. Accordingly, Applicants respectfully submit that Claim 29 does not enter new matter.

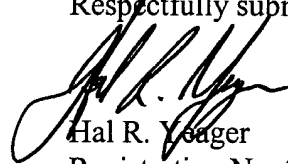
Further Difference with Respect to the Aoki patent

It is respectfully noted that the device of the Aoki patent has a major mesa section of uniform width and minor mesa section of tapered width. Given the width values and step changes in index of refraction at the sides of Aoki's mesa, Aoki's major second can support multiple transverse modes, and whereas only the narrowest part Aoki's minor mesa section can only support a single transverse mode (Aoki patent, column 2, lines 52-64, and FIG. 1). This is yet a further distinction with respect to the pending claims, as recited by independent Claims 1 and 29.

CONCLUSION

In view of the remarks made above, Applicants respectfully submit that the application is in condition for allowance and action to that end is respectfully solicited. If the Examiner should feel that a telephone interview would be productive in resolving issues in the case, she is invited to telephone the undersigned at the number listed below.

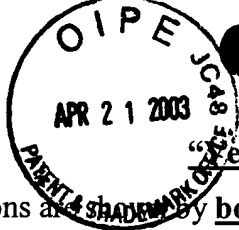
Respectfully submitted,



Hal R. Yeager

Registration No. 35,419

April 15, 2003
SHEPPARD MULLIN RICHTER & HAMPTON, LLP
Four Embarcadero Center, 17-th Floor
San Francisco, CA 94111
Tel: (415) 434-9100
Fax: (415) 434-3947



"Version with Markings to Show Changes Made"

Additions are shown by bold underlining, deletions are shown with [bold brackets].

In the Claims:

1. (Twice Amended) A semiconductor pumping laser device comprising:

a resonator cavity having a first end face and a second end face, and comprising a cavity portion between the first and second end faces, the cavity portion having a length greater than or equal to 1200 μm and a width along the entire length that can only support a single transverse mode;

a laminated structure of a semiconductor material including an active layer comprising at least one quantum well structure, said laminated structure being formed on a substrate and having at least a portion disposed in said cavity portion;

a low-reflection film formed having a reflectance of 5% or less on one end face of the structure; and

a high-reflection film having a reflectance of 80% or more formed on the other end face of the structure.

RECEIVED
APR 24 2003
TECHNOLOGY CENTER 2800